

Case report of testicular epidermoid cyst

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ABSTRACT

Background: The epidermoid cyst of the testes is an exceptional benign tumor. Furthermore, inguinal orchidectomy is the treatment of choice for testicular tumors; conservative therapy can be attempted if an epidermoid cyst is suspected. **Case presentation:** The study presented a case of an 18-year-old patient with a right-sided testicular epidermoid cyst. Ultrasound showed rounded intra-parenchymal lesion measuring 12×12×13 mm with heterogeneous appearance ad hyper-echogenic center with no internal blood flow and no anomaly detected in the contralateral testicle. **Conclusion:** The testicular epidermal cyst is considered as occasional benign tumor affecting the testis; mostly the right side is the predominant side. Currently, conservative surgery has become a gold standard due to the advent of medical imaging to identify the differential diagnosis of teratoma and testicular epidermoid cyst.

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1. INTRODUCTION

Testicular epidermoid cysts are highly rare and account for less than 1% of all testicular tumors. These cysts were firstly identified for the first time (Dockerty and Priestly, 1942). However, in fact, Ewing identified the first case in 1911 as an accidental finding corresponding to a teratoma (Ewing, 1911). These cysts are rare and usually benign masses, accounting for about 1% of all resected testicular masses, but they are still the most prevalent benign tumors originating in the testis (Price, 1969). Generally, their sizes range from 0.5-10.5 cm and a mean diameter of 2 cm. Most of the affected patients are in the 2nd to 4th decades of life; however, patient age varies from 3 to 77 years (Shah et al., 1981 & Heidenreich et al., 1995). In 2016, the latest report of the WHO classifies the testicular epidermoid cysts as a prepubertal type of teratoma within the class of germ cell tumors independent from germ cell neoplasia in situ (Moch et al., 2016).

The clinical manifestation of epidermoid cysts is distinct from that of a more common malignant germ cell tumor. Most of the patients are asymptomatic, with detected mass either during a physical examination or at self-examination as a firm, smooth, painless mass (Langer et al., 1999 & Malvica, 1993). There are some widely accepted histological criteria applied to classify a lesion as an epidermoid cyst of the testis. These criteria include that the lesion is situated in the parenchyma of the testis, the cyst

lumen contain keratinized debris or amorphous material, the cyst wall consists of fibrous epithelium, no teromatous elements or dermal adnexal structures including hair follicles or sebaceous glands are found within the cyst wall or testicular parenchyma, and no scars are detected in the remainder of the parenchyma (Price, 1969; Bhattacharjee et al. 2020).

Many investigators have considered orchidectomy with an inguinal approach as the treatment of choice in both adults and children with the testicular epidermoid cyst. However, within recent decades, numerous investigators advocated local excision or enucleation as the treatment of choice (Walsh and Rushton, 2000). Others assume that patients with no local or metastatic recurrence of the epidermoid testicular cyst should undergo local enucleation. In a study of 300 cases managed by a conventional approach (enucleation or wedge resection) and stated that there was no recurrence of peripheral metastases was reported by any case (Heidenreich et al., 1995).

The advancement of medical imaging has fundamentally changed the management of testicular epidermoid cyst from orchidectomy to conservative therapy and has also made it possible to diagnose differentiation with teratoma. This case study is a recent discovery that focuses on the benignity of the cyst.

2. CASE REPORT

Case history and examination

An 18-year-old male patient presented to the primary care clinic for a medical check-up. Past medical, surgical, and social history was unremarkable. There was no history of the sexually transmitted disease, trauma, or previous testicular surgery. The patient was found to have a right testicular mass during check-up by a primary care physician and then was referred to a urology clinic for further workup. The urologist found no complaint referable to the testis or any inflammatory signs on the patient. Additionally, the patient did not report the presence of lower urinary tract symptoms nor constitutional symptoms.

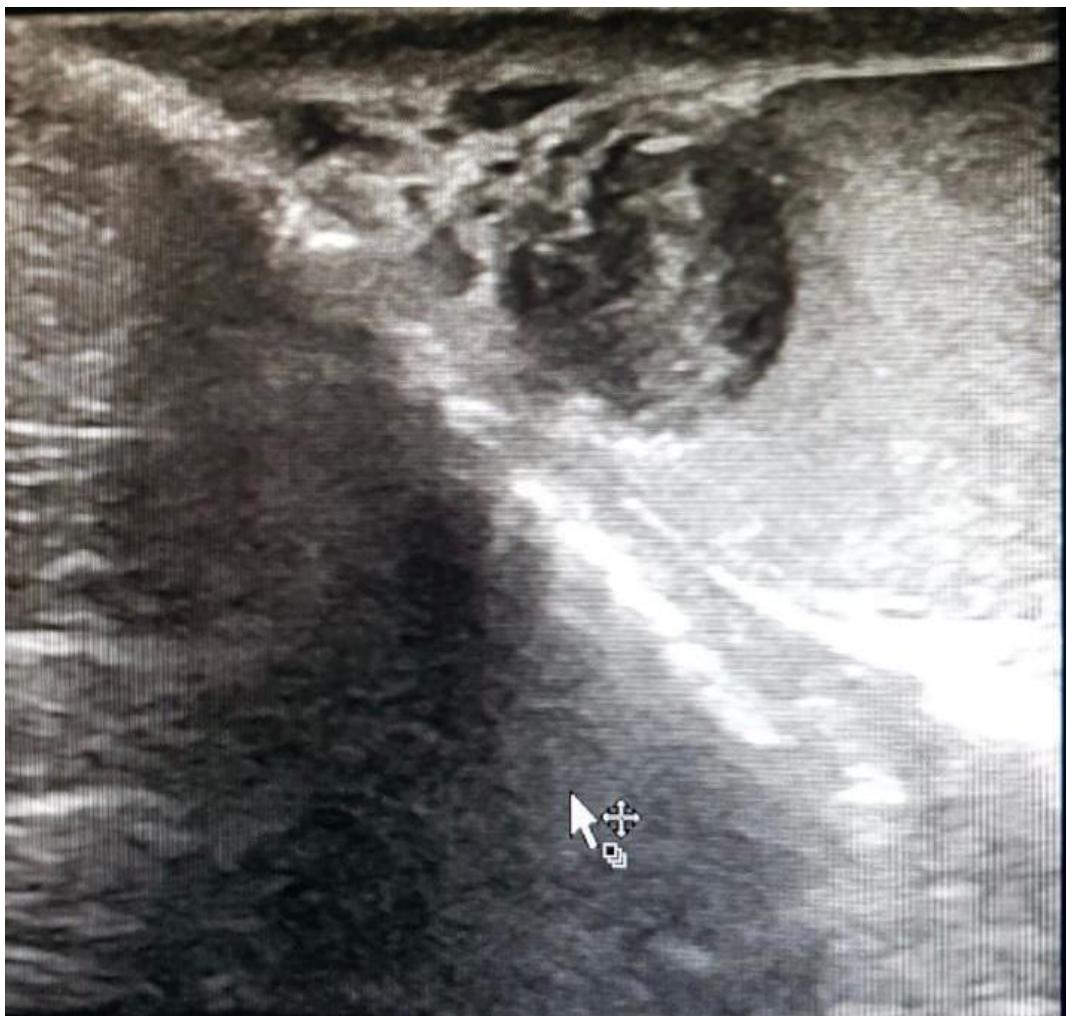


Figure 1 18-year-old male with a testicular epidermoid cyst. Transverse gray-scale sonogram of the right testis identifies a well-demonstrated heterogeneous mass

On examination, the physicians found a hard, irregular, and palpable 1.5 cm mass at the mid-pole of the right testis. This mass was independent of the epididymis and the scrotal wall. The right cord structure, the left testis, epididymis, and the scrotal wall were all normal. Tumor markers, including alpha-fetoprotein, beta HCG & LDH, were negative. Ultrasound showed rounded intra-parenchymal lesion measuring 12 ×12×13 mm with the heterogeneous appearance and hyper-echogenic centre with no internal blood flow and no anomaly detected in the contralateral testicle (Figure 1 and 2).

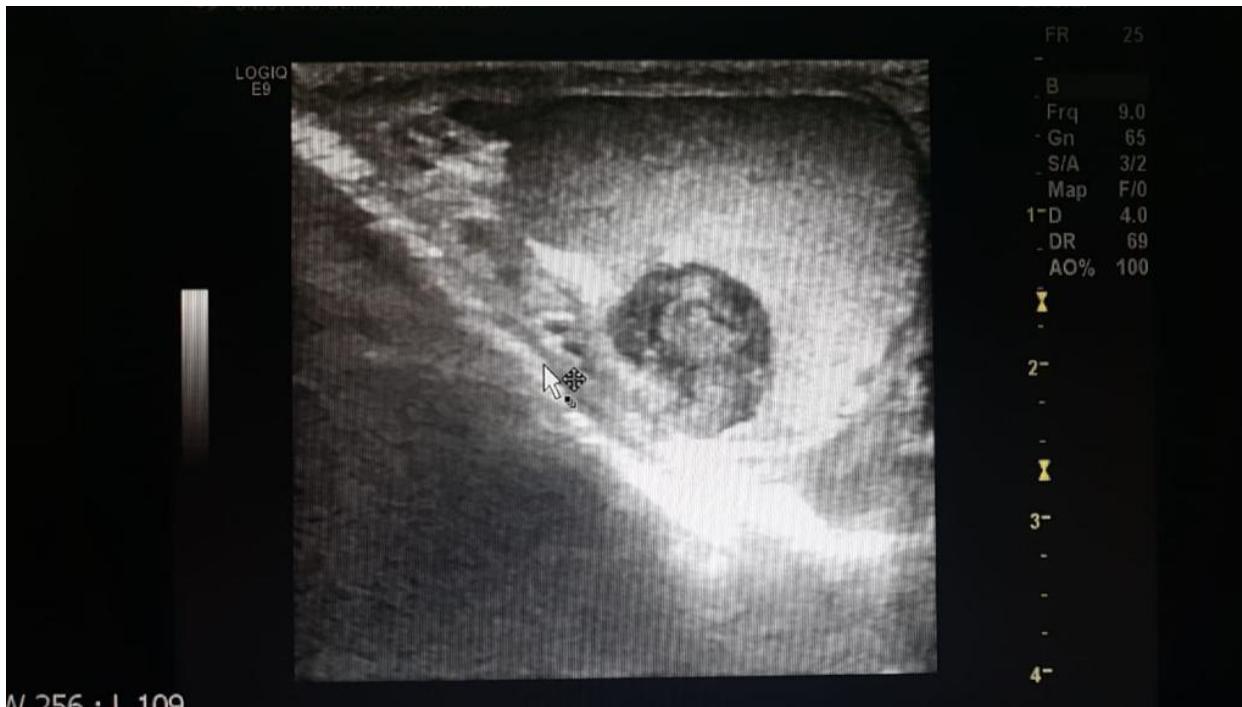


Figure 2 18-year-old male with a testicular epidermoid cyst. Transverse grey-scale sonogram of the right testis identifies a well-demonstrated heterogeneous mass.

Based on the physical examination, the imaging as well as the history, we suspected the presence of a benign lesion; nevertheless, we could not exclude malignancy, so a surgery of exploration has been preceded. An inguinal incision was done, clamping of the spermatic cord and enucleation of the lesion was also implemented, and the mass was sent to the frozen section. Results came out with an epidermoid cyst, so testicular preservation surgery was done (Figure 3). A period of 12 months of follow-up was considered, and it was reported that no tumor recurrence was reassured by clinical examination and ultrasound imaging.

Histo-pathological report details

Microscopic description demonstrated a single oval greyish tan mass that measures 1.5×1×1.5 cm. The cut section shows a cyst with a pearly white inner wall and contains greyish pultaceous material. Microscopic evaluation of all sections revealed fibrous cyst wall lined with squamous epithelium containing keratinous material with no evidence of malignancy and diagnosed as an epidermoid cyst.

3. DISCUSSION

A testicular epidermoid cyst is a rare testicular tumor-like lesion, accounting for 1% of all testicular tumors and 3% of juvenile testicular tumors (Ross et al., 1993). The typical clinical presentation is a chance observation of a painless and asymptomatic testicular mass, the right side being the predominant side (Heidenreich et al., 1995). Four theories (Price, 1969; Umar and MacLennan, 2008; Çakiroglu et al., 2015; Gonzalez and Ross, 1997) were tested, presenting the possible etiology of testicular epidermoid cysts. Previously, several investigators have contended that these cysts are of teratomatous origin growing from the monodermal feast of epidermal cells. The second hypothesis is defined as metaplasia of the rete testis epidermal cells secondary to the obstruction of the epidermal tube. However, this hypothesis is not supported by the various positions of the identified cysts. The third is the formation of epidermoid cysts due to the keratinization of the rete testis. This hypothesis does not explain the

appearance of epithelium squamous metaplasia observed in histology. The fourth theory, finally, is the migration of squamous cells originating from embryological skin from the scrotum to the testes. There is also a lack of proof to support this hypothesis, though.



Figure 3 Intra-operative enucleation of the cyst appeared as a pearly white creamy material firm in consistency.

Our case was of a medically free patient aged 18-year-old with a right-sided testicular epidermoid cyst. No change of the size was detected, no lower urinary tract symptoms were reported, and requested tumor markers were negative. This case promoted the concept of variability, as there is a mixture of sonographic features and patterns within a single lesion. The microscopic evaluation of all sections revealed a fibrous cyst wall lined with squamous epithelium containing keratinous material with no evidence of malignancy and diagnosed as an epidermoid cyst.

The management of epidermoid cysts has evolved over the last decade, with the previous orchidectomy standard being replaced by conservative enucleation or keyed resection in cases with characteristic radiological features and negative tumor markers. Tumor markers (alpha fetoproteins and beta HCG) are always normal for isolated epidermoid testicular cysts (Bruni and Glanc, 2015). No reported cases of local recurrence or metastases have been detected in the literature, so conservative behavior has recently become the treatment of choice. This treatment procedure includes a partial orchidectomy accompanied by an extemporaneous biopsy to prevent malignancy. If the pathology is identified as benign, the treatment can be terminated; however, if the final pathology describes a teratoma or malignant pathology, a radical orchiectomy is required (Dieckmann and Loy, 1994).

4. CONCLUSION

The testicular epidermal cyst is a rare benign tumor of the testis; mostly the right side is the predominant side. Current conservative surgery has become a gold standard due to the advancement of medical imaging to define some of the limits that lie in the differential diagnosis of teratoma involving massive multicenter trials to further classify these two entities.

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Conflict of interests

The author declares that he have no conflicts of interest.

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Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

Data and materials availability

All data associated with this study are present in the paper.

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